Metaverse Standards Forum End User Technical Troubleshooting Working Group Charter
FINAL
Approved by the Oversight Committee on August 23, 2023

1. Status and Change History

13 April 2023 - Initial Draft for discussion and updates

27 April 2023 - Updates and to reflect types of devices and clarify end-user types, add diagnostic data and tools under tools, added additional groups to coordinate with.

17 May 2023 - add in define testbeds and World Broadband Association for coordination.

15 June 2023 - add use cases to milestones and updated communication plan

29 June 2023 - added in deliverables

14 July 2023 - updated change history

23 Aug 2023 - update the title

07 Sep 2023- Close open items for first version of WG charter

2. Officers

Three Chair(s), plus other Officer positions for election (to be updated after election)

- Eric Klein, Cloudonix, Inc.
- Carmen Mac Williams, Grassroots Arts
- Brent Van Dussen, Megaport

3. Motivation and Goals (and NON-Goals)

3.1. Motivation

The topic is to provide guidance to the industry to help enable a proper troubleshooting in case of errors, identifying the source. This Group will also provide a testbed (including possibly referencing existing requirements/tests) in order to confirm that devices support a common set of features, so that end users can enjoy consistent experiences no matter what brand of device they own. The quality of the graphics/audio might be scaled to device capabilities, but the experience should be usable without manual user intervention.

The Group also wishes to encourage tools to be constructed that can be used by products to streamline end-user troubleshooting of common experience configuration errors.

This initiative will initially focus on the use case of the in-progress CAROUSEL European Research Project, which is to dance online together with other remote user avatars in real time. By targeting freestyle as well as classical partner dancing we focus on a set of current challenges including sensor fusion, desynchronization due to network/platform latency and the integration of new haptic interfaces using existing hardware.

Additional use cases will be added as identified for particularly problematic end-user problems to generate requirements into industry and/or SDOs.

To make this possible we need to enable uniform interactions and troubleshooting between, parts to be managed include, but are not limited to:

- Metaverse Environment (underlying cloud infrastructure)
- VR goggles
- Headset/Bluetooth audio
- Avatar repository or other 3rd party avatar tool being used for cross network consistency
- Consoles / platforms / Mobile phone / operating system
- In house networks (Wi-Fi, ethernet, BlueTooth, etc.)
- Carrier network (Cellular, DSL, Fiber, Cable, etc.)
- Long haul network (between carriers/countries)

It should be noted that end users can represent multiple endpoints based on the use case, we need to look into how different endpoints interact and will be troubleshooted. A user can be using multiple items off of the above list that need to interconnect to be able to be tested when problems occur.

We aim to be an inclusive initiative that catalyzes a testbed that targets a large user base by supporting a large variety of hardware configurations from smartphones to high-end consumer XR devices, so that we can map experiences tailored to the hardware and devices that users have access to.

3.2. Goals

The Group wishes to help coordinate with interested standards bodies to:
identify the requirements necessary to identify problems in the individual components and various interconnections

- Define the tools for consistent end use experiences
  - Diagnostic data and tools
  - Define Testbed requirements and who is responsible for host it/them.
- Work with the appropriate standards bodies so they can influence standards development to be built-in to the various components.

3.3. Non goals

This Group within the Forum will not specify protocols, APIs, nor detailed architectures supporting metaverse applications in relation to connectivity networks as these will be defined by the relevant SDOs. The Group does not intend to work on reference implementations but may contribute to chartering an Exploratory Group on this aspect if needed.
To this end, this group will not cover the following topics as out of scope and covered elsewhere in the forum:

- Blockchain and finance related interoperability
- Avatar / image interoperability
- Regulatory consideration in order for that to be defined VR glasses need to support the following basic features (Examples):
- Display of Image/Video/Sound Files
- Display of Information as Websites/Text Files/Presentations
- Providing Positioning/Location/Orientation/Movement
- Transmitting Audio
- Bluetooth/Wi-Fi/Mobile Data/NFC/…
- Application scalability - i.e. scaling content form a mobile phone to a high end PC-based XR platform

4. Project Deliverables and Requirements

Set of conceptual guidelines and use cases for troubleshooting

- Test bed baseline requirements
- Testing criteria and points

5. Milestone Plan

D Web Interoperability and also Interoperable Characters/Avatars groups

5.1. Define the conceptual guidelines and use cases
5.2. Define test bed requirements
5.3. Define test bed budget requirements / sponsors
5.4.

6. Coordination

The Group shall coordinate with Forum Working Groups:

- Standards Register Working Group to assist in identifying cooperative SDOs
- Network Requirements and Capabilities to Support Metaverse Applications Working Group should it be approved for testing and monitoring requirements
- Privacy, Cybersecurity, and Identity.
- Web Interoperability working group
- Interoperable Characters/Avatars working group

There should also be coordination with external groups including:

- [Telemanagement Forum (TM Forum)](#)
- [TIP (Telecom Infra Project)](#)
- [WBBA World Broadband Association](#)
- [The Khronos Group](#), in particular the [OpenXR](#) Working Group
- [The Open Metaverse Foundation](#)

7. Communication Plan

Quarterly publish guidelines on the forum site and to respective standards bodies
Twice a year report back to MSF Oversight and Chairs groups

8. Risk Factors

This working group will need to protect against creating actual specifications or getting too caught up in the process of each group in the coordination section above.

9. Working Group Renewal

TBD

10. Project Funding and Resources

<Source and form of Project funding requested/approved by Oversight Committee, if necessary>
- Potentially for a test bed. TBD by the working group as part of milestone 5.3

11. References

[CAROUSEL European Research Project](#)

[Forum Cohort Policy Process](#)